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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,556	02/11/2004	Jill M. Cummings	GP-303641	2777

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EXAMINER

LARKIN, DANIEL SEAN

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/776,556

Applicant(s)

CUMMINGS ET AL.

Examiner

Daniel S. Larkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6-8, and 17 is/are rejected.
- 7) ☒ Claim(s) 3-5 and 9-16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 21 June 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to because of the following:

Reference box "26", as shown in Figure 1, should also be labeled

-- Density meter --.

Reference box "30", as shown in Figure 1, should also be labeled

-- Control apparatus -- or something equivalent.

Reference device "76", as shown in Figure 1, should also be labeled

-- Pressure regulator --.

Reference box "84", as shown in Figure 1, should also be labeled

-- Filter --.

Reference box "100", as shown in Figure 1, should also be labeled

-- Secondary pump -- or -- Pump --.

2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings

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for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

Page 5, paragraph [0016], and line 10: The term -- that -- should be inserted after the term "such".

Page 5, paragraph [0016], and line 11: The term "draw" should be corrected to read -- drawn --.

Page 6, paragraph [0018], and lines 1-7: Reference should be made to tubes 26 in the second hydraulic circuit, since the specification only mentions the tubes 26 with respect to the first hydraulic circuit 42. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 17, claim lines 15 and 16: How does one "isolate the density effects of air entrainment from the density effects of temperature" if one does not first compensate for temperature in the processing/sampling environment? The claim fails to disclose any means for measuring temperature, compensating for changes in temperature, or establishing that the first and second transient response periods are both at the same temperature.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0167824 (Brown et al.).

With respect to the limitations of claims 1, 6, and 8, the reference to Brown et al. discloses an apparatus and method for measuring the density of aerated liquids and slurries, comprising: a reservoir/flow line (2) containing the fluid; an aerator/gasification unit operatively connected to the reservoir/flow line (2) to selectively aerate the fluid and thereby cause the fluid to undergo a transient air entrainment response period wherein

the amount of air entrained in the fluid varies with respect to time; and a density meter (4) operatively connected to the reservoir/flow line (2) to measure the density of the fluid. With respect to the limitation of measuring the density at a plurality of times during the transient air entrainment response period, the reference discloses that the results of the density meter are used to control the aeration of the fluid material. Therefore, a continuous measurement sequence is created, i.e. a plurality of measurements, until another controlled aeration is undertaken creating a new response period.

With respect to the limitation of claim 7, the reference to Brown et al. discloses that the density meter (4) is a vibrating tube type. The examiner argues that this type of device is equivalent to a Coriolis flowmeter, since the density meter cited in the specification is a U-shaped vibrating tube which are the shapes used in Coriolis flowmeters comprising either a single U-shape or a double U-shape.

8. Claims 1, 2, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/30174 (Brown et al.).

With respect to the limitations of claims 1, 6, and 8, the reference to Brown et al. discloses a confectionary aeration system, comprising: a reservoir/hopper/vessel (1, 1') containing the confection/fluid; an aerator (12) operatively connected to the reservoir/hopper/vessel (1, 1') to selectively aerate the confection/fluid and thereby cause the fluid to undergo a transient air entrainment response period wherein the amount of air entrained in the fluid varies with respect to time; and a density meter (15) operatively connected to the reservoir/hopper/vessel (1, 1') to measure the density of

the confection/fluid. With respect to the limitation of measuring the density at a plurality of times during the transient air entrainment response period, the reference discloses that the results of the density meter are used to control the aeration of the fluid material. Therefore, a continuous measurement sequence is created, i.e. a plurality of measurements, until another controlled aeration is undertaken creating a new response period.

With respect to the limitations of claim 2, the reference to Brown et al. discloses that the aerator (12) works with a hydraulic circuit (7) having an inlet (8) located in the reservoir/hopper/vessel (1, 1') and an outlet (9) in the reservoir/hopper/vessel (1, 1'), the outlet (9) being positioned above the inlet (8) so that the inlet (8) may be below the surface of the confection/fluid and the outlet (9) may be above the surface of the confection/fluid; and wherein the aerator (12) includes a pump (11) configured to cause the confection/fluid to circulate through the hydraulic circuit (7). The examiner argues that the aerator working in conjunction with a hydraulic/recirculation circuit is functionally equivalent to applicant aerator and hydraulic circuit as a means of continually supplying an aerated fluid to the reservoir.

With respect to the limitation of claim 7, the reference to Brown et al. discloses that the density meter (15) is a vibrating tube type. The examiner argues that this type of device is equivalent to a Coriolis flowmeter, since the density meter cited in the specification is a U-shaped vibrating tube which are the shapes used in Coriolis flowmeters comprising either a single U-shape or a double U-shape.

Allowable Subject Matter

9. The following is a statement of reasons for the indication of allowable subject matter:

Prior art was not relied upon to reject claims 3-5 and 9-17 because the prior art fails to teach and/or make obvious the following:

Claims 3-5: Providing a programmable control apparatus operatively connected to the pump and configured to selectively control the pump to affect the pressure of the fluid in the hydraulic circuit in combination with all of the limitations of the base claim and intervening claim 2.

Claim 9: Providing a method of determining air entrainment characteristic of a fluid comprising a fluid which is substantially unaerated at the initiation of the first predetermined time period, wherein the fluid is characterized by a maximum possible amount of air entrainment; and wherein said aerating the fluid causes the fluid to reach the maximum possible amount of air entrainment in combination with all of the limitations of the base claim.

Claims 10-16: Providing a method of determining air entrainment characteristic of a fluid comprising allowing the fluid to deaerate for a second predetermined time period to result in a second transient response period wherein the air entrainment of the fluid varies with respect to time in combination with all of the limitations of the base claim.

Claim 17: Providing a method of determining air entrainment characteristic of a fluid comprising aerating the fluid to cause a first transient response period wherein the

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air entrainment of the fluid varies with respect to time; allowing the fluid to deaerate to result in a second transient response period wherein the air entrainment of the fluid varies with respect to time; and generating a set of data by recording a corresponding measured density of the fluid for each of a plurality of time values within the first transient response period and within the second transient response period in combination with all of the remaining limitations of the claim.

10. Claims 3-5 and 9-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claim 17 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art to US 5,375,459 (Gerke et al.) discloses a defoaming testing apparatus comprising a reservoir/foam cell (10) a recirculation circuit (42), a pump (48), and a density meter (40) for measuring the amount of entrained air in the system.

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The prior art to US 4,584,866 (Janssen) discloses a method and apparatus for the determination of non-dissolved gas in liquids by measuring the density of liquid in a closed space.

The prior art to US 3,497,034 (Eddy, Jr.) discloses an engine lubricant aeration gauging method and apparatus for measuring and controlling the amount of entrained air in the oil of the system.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Larkin whose telephone number is 571-272-2198. The examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Larkin
AU 2856
30 March 2005



DANIEL S. LARKIN
PRIMARY EXAMINER